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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	§	Group Art Unit: 1743
	§	
Mark A. Campbell, et al.	§	Examiner: Siefke, Samuel P.
	§	
	§	Atty. Dkt. No.: 5500-48700
	§	TT3313
Serial No. 09/366,441	§	
Filed: August 3, 1999	§	
For: SYSTEM AND METHOD FOR MONITORING AND/OR CONTROLLING ATTRIBUTES OF MULTIPLE CHEMICAL MIXTURES WITH A SINGLE SENSOR	§	

CERTIFICATE OF MAILING
37 C.F.R. § 1.8

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date indicated below:

Robert C. Kowert
Name of Registered Representative

September 13, 2004
Date

Signature

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir/Madam:

Further to the Notice of Appeal filed July 13, 2004, Appellants present this Appeal Brief. Appellants respectfully request that this appeal be considered by the Board of Patent Appeals and Interferences.

I. REAL PARTY IN INTEREST

The subject application is owned by Advanced Micro Devices, Inc., a corporation organized and existing under and by virtue of the laws of the State of Delaware, and having its principal place of business at One AMD Place, Sunnyvale, CA 94088, as evidenced by the assignment recorded at Reel 010265, Frame 0140.

II. RELATED APPEALS AND INTERFERENCES

No other appeals, interferences or judicial proceedings are known which would be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 1-15 are pending and rejected. Claims 16-45 were canceled subsequent restriction by the Examiner. The rejection of claims 1-15 is being appealed. A copy of claims 1-15 is included in the Claims Appendix hereto.

IV. STATUS OF AMENDMEMNTS

No amendments to the claims have been submitted subsequent to the final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

In many chemical processes, careful monitoring and/or control of attribute values of multiple chemical mixtures may be desirable. *See, e.g.*, specification, p. 1, lines 16-27. One field where this hold true is the field of semiconductor fabrication. *See, e.g.*, specification, p. 2, line 1 – p. 3, line 9. Some prior techniques for characterizing attribute values of chemical mixtures only estimate attribute values from historical data, and as such are not always sensitive to the variations that may occur from process run-to-run.

Such prior techniques may also result in inefficiencies in the manufacturing process. *See, e.g.*, specification, p. 3, lines 11-24. To ensure that chemical mixtures are correctly mixed or "poured up" in their respective vessels, separate attribute sensors for each mixture vessel have been used. However, in processes requiring multiple chemical mixtures, the installation, maintenance and space requirements of separate sensors for each mixture have proven costly. *See, e.g.*, specification, p. 3, line 26 – p. 4, line 21.

Independent claim 1 is directed to a monitoring system that includes a sensor which selectively receives multiple different chemical mixture sample flows from multiple different respective chemical vessels. One embodiment is illustrated in Fig. 1, which illustrates a monitoring system 100 including sensor 106 that selectively receives multiple different chemical mixture sample flows from multiple different respective chemical vessels 102 and 104, as described in the specification at p. 15, line 3 – p. 25, line 9. Other embodiments of such monitoring systems are illustrated at Figs. 2, 11 and 12. The sensor is configured to measure a first sample attribute (e.g. concentration) of said first sample flow and a second sample attribute of said second sample flow. Embodiments of the sensor are described at p. 19, line 9 – p. 22, line 16, for example. Embodiments of chemical vessels are described at, for example, p. 15, lines 19-29. In some embodiments, a supply distribution system 108 may selectively multiplex the different chemical mixture sample flows from multiple different respective chemical vessels to the sensor. *See, e.g.*, specification, p. 16, line 22 – p. 17, line 23. In some embodiments, a return distribution system 110 may be included to aid in returning sample flows to their respective vessels and in purging between samples. *See, e.g.*, specification, p. 17, line 25 – p. 19, line 7.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 1-8 are rejected under 35 U.S.C. § 102(b) as being anticipated by Tawarayama et al. (U.S. Pat. No. 5,783,740).

2. Claims 1-7 and 9-15 are rejected under 35 U.S.C. § 102(b) as being anticipated by

published European Patent Application 0543544.

VII. ARGUMENT

First Ground of Rejection:

Claims 1-8 are finally rejected under 35 U.S.C. § 102(b) as being anticipated by Tawarayama et al. (U.S. Pat. No. 5,783,740) (hereinafter "Tawarayama"). Appellants traverse this rejection for the following reasons. Different groups of claims are addressed under their respective subheadings.

Claims 1-5:

Tawarayama does not teach a sensor configured to selectively receive a first sample flow of a first chemical mixture from a first chemical vessel and to selectively receive a second sample flow of a second chemical mixture from a second chemical vessel, as recited in claim 1. Tawarayama teaches that a sample 202 is mixed with a decomposing reagent 203 in tube 103 by the first sample introduction unit 2 (col. 4, lines 45-59). The sample mixture is then heated and decomposed by thermostat 303 in pre-treatment unit 3 (col. 4, line 60 – col. 5, line 21). The sample mixture is then injected by the second sample introduction unit 4 into coloring unit 6 where it is mixed with coloring reagent 602 (col. 5, lines 22-52). The resultant sample mixture is then measured by detection unit 7 (col. 5, lines 53-67). Thus, Tawarayama teaches how a sample from a single source 202 is prepared for testing (by being mixed with a decomposing reagent, heated, and mixed with a coloring reagent) and then tested by a detection unit. The detection unit in Tawarayama only receives samples processed from this single source. Tawarayama does not teach a sensor configured to selectively receive a first sample flow of a first chemical mixture from a first chemical vessel and to selectively receive a second sample flow of a second chemical mixture from a second chemical vessel, as recited in claim 1. Therefore, claim 1 is clearly not anticipated by Tawarayama.

In response to this argument, the Examiner states on p. 2 of the Final Action that "Examiner is relying on 202 being the first sample, and the second sample is created in the second sample introduction unit, the decomposed sample is introduced in the second sample loop, thus creating a second sample out of the first sample." The Examiner further states that "Examiner recognizes there is only a single sample source as the Applicant is pointing out, but **two sample flows** and **two separate samples** (first chemical mixing vessel (sample loop 204), second chemical mixing vessel (second sample loop 412)) are created by one sample source." (emphasis by Examiner). Appellants note that, although Tawarayama's system does create multiple sequential sample flows from a single sample vessel 202, the detection unit 7 in Tawarayama is not configured to selectively receive separate chemical mixture sample flows from separate chemical vessels. In Tawarayama, all sample flows are received by detection unit 7 from the second sample loop 4 via coloring unit 6. As the Examiner himself noted, in Tawarayama the sample flow at the second sample loop is created out of the sample flow from the first sample loop. Since the sample flow from the first sample loop turns into the sample flow from the second sample loop before it ever reaches the detection unit 7, in Tawarayama the detection unit 7 cannot <u>selectively</u> receive sample flows from both the first sample loop and the second sample loop.

In the Advisory Action of August 13, 2004, the Examiner states that "sample loops (410, 412) and switching valves (411, 413) as described in Tawarayama act as selective receiving means." However, Appellants note that sample loops (410, 412) and valves (411, 413) as described in Tawarayama operate to create two different flow paths for two different detection units. As is plainly illustrated in Fig. 2 of Tawarayama, sample loop 410 and valve 411 operate to provide sample flows to detection unit 720 and sample loop 412 and valve 413 operate to provide sample flows to a separate detection unit 710. Thus, sample loops (410, 412) and switching valves (411, 413) as described in Tawarayama clearly do <u>not</u> allow a <u>single</u> sensor to selectively receive a first sample flow of a first chemical mixture from a first chemical vessel and to selectively receive a second sample flow of a second chemical mixture from a second chemical vessel, as recited in

claim 1. By teaching that samples are directed to two different detection units, sample loops (410, 412) and switching valves (411, 413) in Tawarayama actually teach away from Appellants' claimed invention. The teachings of Tawarayama clearly do not meet the standard for anticipation which requires that the identical invention must be shown in as complete detail as is contained in the claims. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1457, 221 USPQ 481, 485 (Fed. Cir. 1984). Appellants' invention as recited in claim 1 is clearly not anticipated by Tawarayama.

Claim 6:

In addition to the distinctions noted above in regard to claim 1, Tawarayama does not teach a return distribution system, wherein the return distribution system is configured to transport purge fluids from the sensor to a drain, and to selectively transport the first sample flow from the sensor to the first chemical vessel or to the drain, and to selectively transport the second sample flow from the sensor to the second chemical vessel or to the drain, as recited in claim 6. The Examiner responds to this argument on p. 3 of the Final Action by referring to the following sentence from col. 6, lines 3-6 of Tawarayama: "The carrier solution 406 is fed by the pump 405 for cleaning the insides of the flow passage 5 and the flow cell of the detection unit 7, and thereafter the next sample is similarly measured." This teaching from Tawarayama clearly does not describe a return distribution system configured to **selectively** transport the sample flows **from the sensor** to either their respective chemical vessels or to the drain. Fig. 1 of Tawarayama illustrates a discharge for detection unit 7. However, the discharge for detection unit 7 does not selectively transport the sample flows from the sensor to their respective chemical vessels. Thus, claim 6 is clearly not anticipated by Tawarayama.

Claim 7:

In addition to the distinctions noted above in regard to claim 1, Tawarayama does not teach a control system configured to receive a first sample attribute value and a second sample attribute value from the sensor, and wherein the control system comprises a display unit configured to display the first sample attribute value and the second sample attribute value, as recited in claim 7. Tawarayama does not teach that its control unit 8 receives any values from the detection unit 7. Nor does Tawarayama teach that its control unit 8 comprises a display unit configured to display the first sample attribute value and the second sample attribute value. In response to these arguments, the Examiner states on p. 3 of the Final Action that it is inherent that use of a colorimetric reaction is a type of display of the results from the tests performed in Tawarayama. Appellants respectfully disagree that a display is inherent in Tawarayama's system. Tawarayama does not teach any displayed optical result. Tawarayama only teaches measurement of optical absorbance. There is no indication that this measurement is ever displayed. The results of the absorbance measurement could be used, for example, in a feedback control mechanism without ever displaying the results. Appellants note that "[i]nherent anticipation requires that the missing descriptive material is 'necessarily present,' not merely probably or possibly present, in the prior art." *Trintec Indus., Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 1295, 63 USPQ2d 1597, 1599 (Fed. Cir. 2002) (quoting *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)). It cannot be said that a display unit configured to display a first sample attribute value and a second sample attribute value is necessarily present in Tawarayama. Moreover, even if some sort of display was inherent in Tawarayama, it would not necessarily be comprised within Tawarayama's control system. Also, as noted above, Tawarayama does not teach that its control unit 8 receives any values at all from the detection unit 7.

Claim 8:

In addition to the distinctions noted above in regard to claims 1 and 7, Tawarayama does not teach that the sensor is configured to measure a plurality of first

sample attribute values for the first sample flow, and wherein the control system is configured to receive the plurality of first sample attribute values from the sensor and to filter the plurality of first sample attribute signals to produce a filtered first sample attribute value, and wherein the control system is configured to display the filtered first sample attribute value on a display unit, as recited in claim 8. The control unit in Tawarayama does not produce a filtered sample attribute value from a plurality of attribute values for a first sample flow. Nor does the control unit in Tawarayama display any filtered attribute values on a display unit.

Second Ground of Rejection:

Claims 1-7 and 9-15 are finally rejected under 35 U.S.C. § 102(b) as being anticipated by published European Patent Application 0543544 (hereinafter "EP 544"). Appellants traverse this rejection for the following reasons. Different groups of claims are addressed under their respective subheadings.

Claims 1-5:

EP 544 does not teach a sensor configured to selectively receive a first sample flow of a first chemical mixture from a first chemical vessel and to selectively receive a second sample flow of a second chemical mixture from a second chemical vessel, as recited in claim 1. EP 544 teaches an apparatus for sampling and diluting a liquid specimen from a single source (pipette 16). Although EP544 does mention several measurements that may be performed on diluted samples taken from pipette 16, EP 544 does not describe the configuration of any sensor that would perform these measurements. The focus of EP 544 is on the sampling and diluting device, not the measurement device(s). Thus, Appellants fail to see how the Examiner can rely on EP 544 to teach a sensor configured to selectively receive a first sample flow of a first chemical mixture from a first chemical vessel and to selectively receive a second sample flow of a second chemical mixture from a second chemical vessel, as recited in claim 1. The only teaching in EP 544 regarding how the samples are provided to the measurement

device(s) is that the samples are discharged into containers B1 – B5. Presumably the containers must then be taken to one or more measurement devices. Thus, EP 544 can hardly be said to teach a single sensor configured to **selectively** receive a first sample flow of a first chemical mixture from a first chemical vessel and to **selectively** receive a second sample flow of a second chemical mixture from a second chemical vessel.

In response to this argument, on p. 3 of the Final Action the Examiner states that the metering performed by the sampling valve described on p. 2, lines 18-19 of EP 544 can be equated to the sensor element of Appellants' claim 1. However, the metering performed by the sampling valve of EP 544 does not teach a sensor configured to measure a first sample attribute of a first sample flow and a second sample attribute of a second sample flow. The terms "metering" and "measuring quantity" are used in EP 544 to mean sampling a specific amount of fluid, not as a sensor configured to measure attributes of chemical mixtures. Referring to Fig. 1 of EP 544, the metering in EP 544 means nothing more than flowing a sample in direction A from pipette 16 to fill up passage P1. The movable element 12 is then moved up to transfer the "metered" sample to the other passage. This sampling valve action has nothing to do with a sensor configured to measure attributes of chemical mixtures. Moreover, the sampling valve of EP 544 receives samples only from pipette 16. Thus, the sampling valve of EP 544 clearly cannot be considered to selectively receive a first sample flow of a first chemical mixture from a first chemical vessel and to selectively receive a second sample flow of a second chemical mixture from a second chemical vessel, as is recited in Appellants' claim 1.

The teachings of EP 544 clearly do not meet the standard for anticipation which requires that the identical invention must be shown in as complete detail as is contained in the claims. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452,

1457, 221 USPQ 481, 485 (Fed. Cir. 1984). Appellants' invention as recited in claim 1 is clearly not anticipated by EP 544.

Claim 6:

In addition to the distinctions noted above in regard to claim 1, EP 544 does not teach a return distribution system, wherein the return distribution system is configured to transport purge fluids from the sensor to a drain, and to selectively transport the first sample flow from the sensor to the first chemical vessel or to the drain, and to selectively transport the second sample flow from the sensor to the second chemical vessel or to the drain, as recited in claim 6. Appellants cannot find any mention whatsoever of any type of a return distribution system in EP 544.

Claim 7:

In addition to the distinctions noted above in regard to claim 1, EP 544 does not teach a control system configured to receive a first sample attribute value and a second sample attribute value from the sensor, and wherein the control system comprises a display unit configured to display the first sample attribute value and the second sample attribute value, as recited in claim 7. The control means 28 of EP 544 does not receive any sample attribute values from a sensor. Nor does EP 544 teach that its control means comprises a display unit configured to display the first sample attribute value and the second sample attribute value.

Claim 9:

In addition to the distinctions noted above in regard to claims 1 and 7, EP 544 does not teach a control system that is configured to determine whether the first sample attribute value is outside of a first sample attribute value range bounded by a low first sample attribute value and a high first sample attribute value, and wherein said control system is configured to generate an out-of-tolerance signal upon determining that said

first sample attribute value is outside of said first sample attribute value range, as recited in claim 9. Appellants cannot find any teaching in EP 544 that its control means 28 generates an out-of-tolerance signal upon determining that the first sample attribute value is outside of a first sample attribute value range.

Claim 10:

In addition to the distinctions noted above in regard to claims 1, 7 and 9, EP 544 does not teach that the control system is further configured to determine whether the first sample attribute value is outside of a secondary first sample attribute value range bounded by a secondary low first sample attribute value and a secondary high first sample attribute value, the secondary first sample attribute value range being larger than said primary first sample attribute value range, as recited in claim 10

Further in regard to claim 10, EP 544 does not teach a processing tool configured to use said first chemical mixture in processing a semiconductor substrate. EP 544 obviously has nothing to do with processing a semiconductor substrate.

Further in regard to claim 10, EP 544 does not teach that upon a determination that the first sample attribute value is outside of a secondary first sample attribute value range, the control system is configured to transmit an inhibit signal to the processing tool for the first chemical vessel, and wherein the processing tool is configured to refrain from using the first chemical mixture in processing upon receipt of the inhibit signal for the first chemical vessel.. Nothing in EP 544 has any relevance to these limitations of claim 10.

Claim 11:

In addition to the distinctions noted above in regard to claim 1, EP 544 does not teach a control system configured to receive the first sample attribute value and the second sample attribute value from the sensor, wherein the control system is configured

to input the first sample attribute value into a first attribute control algorithm to calculate a first attribute control output, and wherein the control system is further configured to direct the adjusting of a first bulk attribute value for the first chemical mixture according to the first attribute control output, as recited in claim 11. The control means in EP 544 performs none of this functionality.

Claim 12:

In addition to the distinctions noted above in regard to claims 1 and 11, EP 544 does not teach that the control system is configured to determine a first attribute error value from the first sample attribute value and a first attribute setpoint value, and wherein the first attribute control output comprises a first attribute control response time based on the first sample attribute value, and wherein if the first attribute error value is less than a first attribute dead band value, the control system is configured to set the first attribute control response time to zero, and wherein if the first attribute error value is greater than a first attribute dead band value, the control system is configured to calculate the first attribute control response time from the first attribute error value, as recited in claim 12. The control means in EP 544 performs none of this functionality.

Claim 13:

In addition to the distinctions noted above in regard to claims 1 and 11, EP 544 does not teach that the control system is configured to direct the transporting of a first chemical supply flow from a first chemical supply to the first chemical vessel to increase the first chemical concentration within the first chemical mixture, as recited in claim 13. The control means in EP 544 performs none of this functionality.

Claim 14:

In addition to the distinctions noted above in regard to claims 1, 11 and 13, EP 544 does not teach that the control system is configured to direct the transporting of a

second chemical supply flow from a second chemical supply to the first chemical vessel to decrease the first chemical concentration within the first chemical mixture, as recited in claim 14. The control means in EP 544 performs none of this functionality.

Claim 15:

In addition to the distinctions noted above in regard to claims 1, 11 and 13, EP 544 does not teach that the control system is configured to direct the transporting of a first chemical supply flow from the first chemical supply to the second chemical vessel to increase the first chemical concentration within the second chemical mixture, as recited in claim 15. The control means in EP 544 performs none of this functionality.

VIII. CONCLUSION

For the foregoing reasons, it is submitted that the Examiner's rejection of claims 1-15 was erroneous, and reversal of his decision is respectfully requested.

The Commissioner is authorized to charge the appeal brief fee of $330.00 and any other fees that may be due to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5500-48700/RCK. This Appeal Brief is submitted with a return receipt postcard.

Respectfully submitted,

Robert C. Kowert
Reg. No. 39,255
Attorney for Appellants

Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C.
P.O. Box 398
Austin, TX 78767-0398
(512) 853-8850

Date: September 13, 2004

IX. CLAIMS APPENDIX

The claims on appeal are as follows.

1. A monitoring system, comprising:

a first chemical vessel containing a first chemical mixture;

a second chemical vessel containing a second chemical mixture; and

a sensor configured to selectively receive a first sample flow of said first chemical mixture from said first chemical vessel and to selectively receive a second sample flow of said second chemical mixture from said second chemical vessel, wherein said sensor is configured to measure a first sample attribute of said first sample flow and a second sample attribute of said second sample flow.

2. The monitoring system of claim 1, wherein said sensor is a concentration sensor configured to measure concentration, and wherein said first sample attribute is a first sample concentration of a first chemical within said first sample flow, and wherein said second sample attribute is a second sample concentration of said first chemical within said second sample flow.

3. The monitoring system of claim 2, wherein said first sample flow comprises a liquid, and wherein said second sample flow comprises a liquid.

4. The monitoring system of claim 1, further comprising a supply distribution system configured to selectively transport said first sample flow and said second sample flow to said sensor.

5. The monitoring system of claim 4, wherein said supply distribution system is configured to transport said first sample flow and said second sample flow to said sensor at a substantially constant flow rate during operation.

6. The monitoring system of claim 4, further comprising:

a purge fluid supply, wherein said supply distribution system is further configured to selectively transport a purge fluid flow from said purge fluid supply to said sensor;

a drain configured to receive fluids; and

a return distribution system, wherein said return distribution system is configured to transport purge fluids from said sensor to said drain, and wherein said return distribution system is configured to selectively transport said first sample flow from said sensor to said first chemical vessel or to said drain, and wherein said return distribution system is configured to selectively transport said second sample flow from said sensor to said second chemical vessel or to said drain.

7. The monitoring system of claim 1, wherein said sensor is configured to measure a first sample attribute value for said first sample attribute and a second sample attribute value for said second sample attribute, and further comprising a control system configured to receive said first sample attribute value and said second sample attribute value from said sensor, and wherein said control system comprises a display unit configured to display said first sample attribute value and said second sample attribute value.

8. The monitoring system of claim 7, wherein said sensor is configured to measure a plurality of first sample attribute values for said first sample flow, and wherein

said control system is configured to receive said plurality of first sample attribute values from said sensor and to filter said plurality of first sample attribute signals to produce a filtered first sample attribute value, and wherein said control system is configured to display said filtered first sample attribute value on said display unit, and wherein said sensor is configured to measure a plurality of second sample attribute values for said second sample flow, and wherein said control system is configured to receive said plurality of second sample attribute values from said sensor and to filter said plurality of second sample attribute values to produce a filtered second sample attribute value, and wherein said control system is configured to display said filtered second sample attribute value on said display unit.

9. The monitoring system of claim 7, wherein said control system is configured to determine whether said first sample attribute value is outside of a first sample attribute value range bounded by a low first sample attribute value and a high first sample attribute value, and wherein said control system is configured to generate an out-of-tolerance signal upon determining that said first sample attribute value is outside of said first sample attribute value range.

10. The monitoring system of claim 9, wherein said first sample attribute value range is a primary first sample attribute value range and said low first sample attribute value is a primary low first attribute value, and wherein said high first sample attribute value is a primary high first sample attribute value, and wherein said control system is further configured to determine whether said first sample attribute value is outside of a secondary first sample attribute value range bounded by a secondary low first sample attribute value and a secondary high first sample attribute value, said secondary first sample attribute value range being larger than said primary first sample attribute value range, and further comprising a processing tool configured to use said first chemical mixture in processing a semiconductor substrate, and wherein upon a determination that said first sample attribute value is outside of a secondary first sample attribute value range, said control system is configured to transmit an inhibit signal to said processing

tool for said first chemical vessel, and wherein said processing tool is configured to refrain from using said first chemical mixture in processing upon receipt of said inhibit signal for said first chemical vessel.

11. The monitoring system of claim 1, wherein said first chemical mixture comprises a first bulk attribute value, and further comprising a control system configured to receive said first sample attribute value and said second sample attribute value from said sensor, wherein said control system is configured to input said first sample attribute value into a first attribute control algorithm to calculate a first attribute control output, and wherein said control system is further configured to direct the adjusting of said first bulk attribute value according to said first attribute control output.

12. The monitoring system of claim 11, wherein said control system is configured to determine a first attribute error value from said first sample attribute value and a first attribute setpoint value, and wherein said first attribute control output comprises a first attribute control response time based on said first sample attribute value, and wherein if said first attribute error value is less than a first attribute dead band value, said control system is configured to set said first attribute control response time to zero, and wherein if said first attribute error value is greater than a first attribute dead band value, said control system is configured to calculate said first attribute control response time from said first attribute error value.

13. The monitoring system of claim 11, wherein said first bulk attribute value is a concentration of a first chemical within said first chemical mixture, and further comprising a first chemical supply configured to be in fluid communication with said first chemical vessel, and wherein said control system is configured to direct the transporting of a first chemical supply flow from said first chemical supply to said first chemical vessel to increase said first chemical concentration within said first chemical mixture.

14. The monitoring system of claim 13, wherein said first chemical mixture further comprise a second chemical having a second chemical concentration within said first chemical mixture, and further comprising a second chemical supply configured to be in fluid communication with said first chemical vessel, and wherein said control system is configured to direct the transporting of a second chemical supply flow from said second chemical supply to said first chemical vessel to decrease said first chemical concentration within said first chemical mixture.

15. The monitoring system of claim 13, wherein said second chemical mixture comprises a first chemical having a first chemical concentration within said second mixture, and wherein said first chemical supply is configured to be in fluid communication with said second chemical vessel, and wherein said control system is configured to direct the transporting of a first chemical supply flow from said first chemical supply to said second chemical vessel to increase said first chemical concentration within said second chemical mixture.

X. EVIDENCE APPENDIX

No evidence submitted under 37 CFR §§ 1.130, 1.131 or 1.132 or otherwise entered by the Examiner is relied upon in this appeal.

XI. RELATED PROCEEDINGS APPENDIX

There are no related proceedings.